

Amendments to the Claims

Please cancel Claims 2 and 3 without prejudice to or disclaimer of the subject matter recited therein.

Please amend Claims 1, 4, 6, 8, 10 and 12 to read as follows.

1. (Currently amended) A printing apparatus for performing printing by discharging ink from an ink-jet printhead, having plural printing elements capable of discharging ink droplets in plural sizes, to a print medium, comprising:

input means for inputting print data;

count means for counting a number of concurrently-driven printing elements corresponding to ~~the a~~ respective one size of the plural sizes, based on the print data inputted by said input means, said count means comprising first and second counters;

determination means for determining a drive pulse applied to the concurrently-driven printing elements corresponding to the respective one size of the plural sizes, based on the result of counting by said count means; and

print means for performing printing by applying the drive pulse determined by said determination means to the concurrently-driven printing elements,

wherein the plural printing elements are divided into plural blocks,

said print means comprises time-divisional drive means for time-divisionally driving the plural printing elements in block units, and

said count means counts the number of concurrently-driven printing elements in the block units, said first counter counting the number of concurrently-driven printing elements, among a first group of printing elements corresponding to discharge of a first size of ink droplets, in block units, and said second counter counting the number of concurrently-driven printing elements, among a second group of printing elements corresponding to discharge of a second size of ink droplets.

Claims 2 and 3 (cancelled)

4. (Currently amended) The apparatus according to claim 3 1, wherein said determination means determines a waveform of a double pulse applied to the first group of printing elements and the second group of printing elements, based on the result of counting by said first counter and the result of counting by said second counter.

5. (Original) The apparatus according to claim 4, wherein the waveform of the double pulse is determined by determining a main pulse width.

6. (Currently amended) The apparatus according to claim 4, wherein said determination means includes comprises:

first weighting means for weighting the result of counting by said first counter and the result of counting by said second counter, for determination of the waveform of the double pulse applied to the first group of printing elements; and

second weighting means for weighting the result of counting by said first counter and the result of counting by said second counter, for determination of the waveform of the double pulse applied to the second group of printing elements.

7. (Original) The apparatus according to claim 6, wherein the weighting by said first and second weighting means is performed in accordance with a ratio of a heater resistance of the first group of printing elements to that of the second group of printing elements.

8. (Currently amended) The apparatus according to claim 6, further comprising storage means for storing plural main pulse widths, and wherein said determination means accesses said storage means based on the result of weighting by said first weighting means to determine a main pulse width to be applied to the first group of printing elements, and accesses said storage means based on the result of weighting by said second weighting means to determine a main pulse width to be applied to the second group of printing elements.

9. (Original) The apparatus according to claim 8, wherein the weighting by said first and second weighting means is performed in accordance with a ratio of a heater resistance of the first group of printing elements to that of the second group of printing elements.

10. (Currently amended) The apparatus according to claim 1, wherein said ink-jet printhead has a nozzle array in which a first type of nozzle to discharge a the first size of ink droplets and a second type of nozzle to discharge a the second size of ink droplets are alternately arrayed.

11. (Original) The apparatus according to claim 10, wherein the first type of nozzle has a first type of electrothermal transducer to generate thermal energy to be supplied to ink for discharging the first size of ink droplets utilizing the thermal energy, and

the second type of nozzle has a second type of electrothermal transducer to generate thermal energy to be supplied to ink for discharging the second size of ink droplets utilizing the thermal energy.

12. (Currently amended) A print control method for performing printing by discharging ink from an ink-jet printhead, having plural printing elements capable of discharging ink droplets in plural sizes, to a print medium, comprising:

an input step of inputting print data;
a count step of counting a number of concurrently-driven printing elements corresponding to the a respective one size of the plural sizes, based on the print data inputted at said input step, said count step comprising first and second counter steps;

a determination step of determining a drive pulse applied to the concurrently-driven printing elements corresponding to the respective one size of the plural sizes, based on the result of counting at said count step; and

a control step of controlling performing of printing by applying the drive pulse determined at said determination step to the concurrently-driven printing elements,

wherein the plural printing elements are divided into plural blocks,

said control step time-divisionally drives the plural printing elements in
block units, and

said count step counts the number of concurrently-driven printing elements
in the block units, said first counter step counting the number of concurrently-driven
printing elements, among a first group of printing elements corresponding to discharge of a
first size of ink droplets, in block units, and said second counter step counting the number
of concurrently-driven printing elements, among a second group of printing elements
corresponding to discharge of a second size of ink droplets.